2004 | Alberta Fire Commissioner's Statistical REPORT

Alberta
Municipal Affairs

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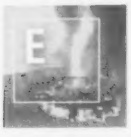

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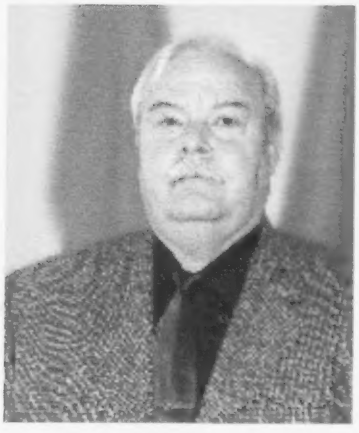
Minister's Message

The Alberta Fire Commissioner's Office is committed to helping Alberta's fire services find new and effective ways of delivering services and enhancing public fire safety.

The Fire Commissioner's Statistical Report for 2004 details the various ways uncontrolled fires can pose a threat to the public. I encourage all fire and emergency services in the province to use the findings in this report as a guide when making decisions that impact the safety and well being of their communities.

Together we can help make Alberta the safest place to live, work and raise a family.

Rob Renner
Minister, Alberta Municipal Affairs



Fire Commissioner's Message

The 2004 Annual Statistical Report emphasizes once again that fire can have a tragic effect on the lives and property of Albertans. A total of 5,126 fires were reported in 2004 that resulted in 27 deaths, 290 injuries and more than $200 million in property losses. I believe this report indicates a number of areas where we can focus our efforts to help reduce these losses in the future.

Only 30 per cent of all fires occurred in homes during 2004, yet 59 per cent of fire deaths, 67 per cent of fire injuries and 42 per cent of all property losses occurred in homes. Home fire safety will therefore remain a primary focus of our fire prevention efforts. Arson and other deliberately set fires remain a troublesome area as well, with one in four fires in Alberta falling into that category. My office is committed to working with all of our partners in public safety to address this issue.

The Alberta Fire Statistics Information System is recognized as one of the most reliable and credible sources of fire statistics in Canada. The information collected is used in a variety of contexts ranging from fire prevention and education programs to fire and building code revisions and federal fire safety legislation affecting all Canadians.

In recent years, fire statistics from Alberta have been used to support two key federal fire safety regulations. The Hazardous Products (Lighters) Regulations were amended in 1995 to require that disposable lighters be child resistant. I am pleased to state that these regulations contributed to the declining trend in cigarette lighter fire incidents and deaths involving children in the past decade. In October 2005, the Cigarette Ignition Propensity Regulations were introduced in Canada. I expect these new regulations to contribute to a significant future reduction in the fires and deaths related to careless smoking, the number one cause of fire fatalities.

I encourage all reporting agencies to continue their valuable contribution to the collection and dissemination of fire statistics to keep Alberta safe.

Yours in safety!

Spence Sample
Acting Fire Commissioner

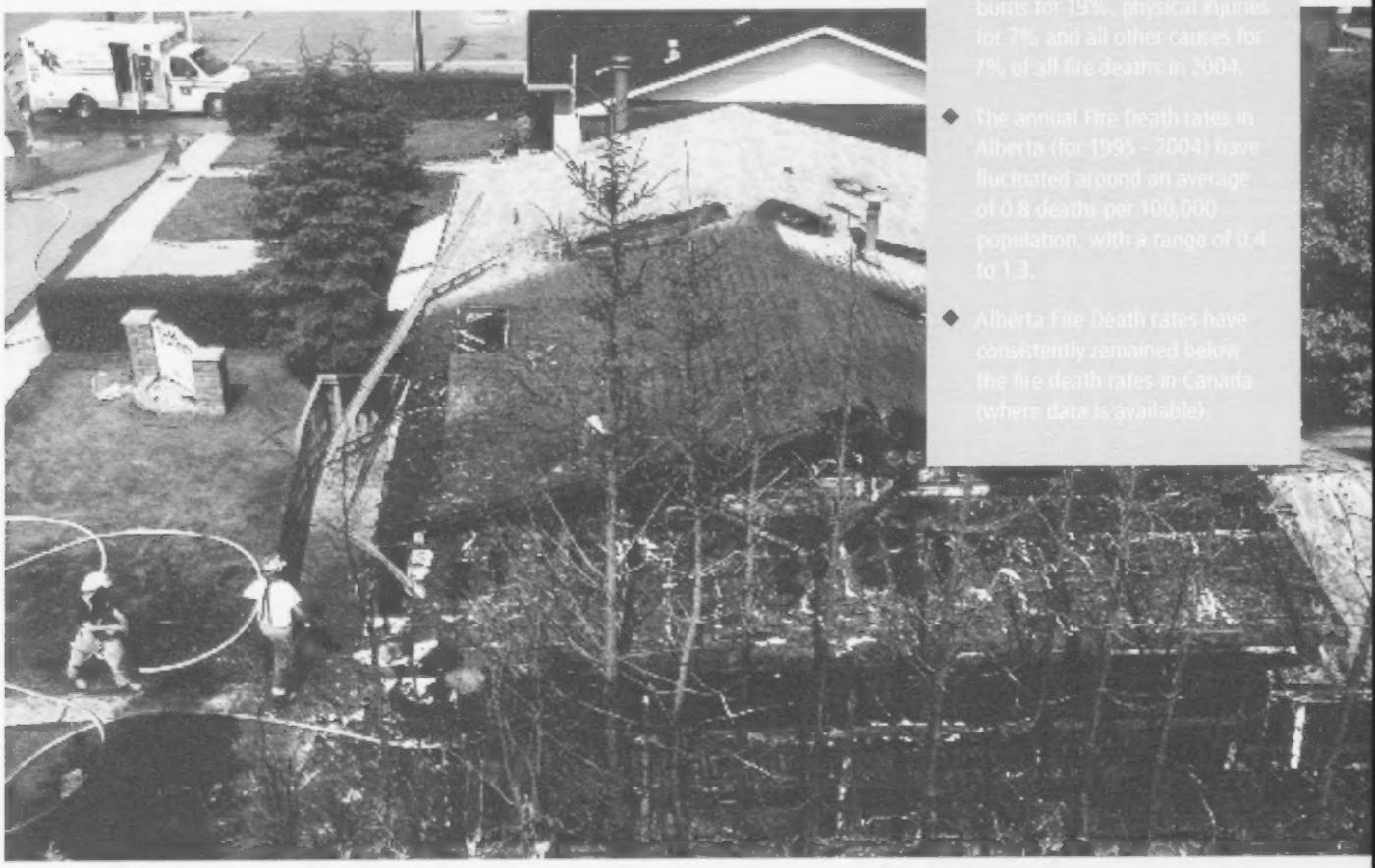
Fire Deaths and Death Rates 1995 - 2004 (Alberta and Canada)

Year	Population	Fire Deaths*	Deaths Involving Fire**	Total Deaths	Alberta Fire Death Rate***	Canada Fire Death Rate
1995	2,615,873	31	5	36	1.2	1.4
1996	2,679,435	34	7	41	1.3	1.3
1997	2,744,731	24	13	37	0.9	1.4
1998	2,781,290	12	8	20	0.4	1.1
1999	2,871,271	34	17	51	1.2	1.3
2000	2,932,963	19	8	27	0.6	1.1
2001	2,962,664	29	14	43	1.0	1.1
2002	3,050,889	18	13	31	0.6	–
2003	3,091,831	14	10	24	0.5	–
2004	3,124,923	14	13	27	0.4	–

* A Fire Death is death directly due to fire or death within one year of a fire injury.
** A Death Involving Fire is a death from causes other than fire, but occurs at a fire incident.
*** Fire Death Rate = number of Fire Deaths per 100,000 population.

FIRE Facts

- Based on known probable causes of death, smoke inhalation accounted for 67%, burns for 19%, physical injuries for 7% and all other causes for 7% of all fire deaths in 2004.
- The annual Fire Death rates in Alberta (for 1995 - 2004) have fluctuated around an average of 0.8 deaths per 100,000 population, with a range of 0.4 to 1.3.
- Alberta Fire Death rates have consistently remained below the fire death rates in Canada (where data is available).



Location of FIRE Deaths 2004

Calgary	4
Camrose No. 22, County of	1
Claresholm	1
Coalhurst	1
Edmonton	5
Foothills No. 31, M.D. of	1
Fox Lake #162	2
Jean Baptiste Gambler #183	1
Lac Ste. Anne County	1
Mountain View County	1
Newell No. 4, County of	1
Ponoka County	1
Rocky View No. 44, M.D. of	1
Sturgeon County	1
Wabasca-Desmarais	1
Willow Creek No. 26, M.D. of	1
Total	**27**

Causes of Fire-Related Deaths

Fire Deaths

One/Two Family Dwellings, Apartments, Mobile Homes and Motor Homes

Cigarette ignited upholstered furniture/bedding	2
Cooking oil/other material ignited in pan on stove top – victims asleep	2
Overheated electrical wiring ignited upholstered furniture	1
Unknown	6

Motor Vehicle Repair Garage/Vehicle Paint Shop

Ignition of accidentally spilled gasoline	1

Trash/Rubbish/Recyclables

Unknown	1
Ignorance of hazard led to garbage/trash/rubbish fire	1
Total Fire Deaths	**14**

Deaths Involving Fire

One/Two Family Dwellings, Apartments and Mobile Homes)

Arson (Molotov cocktail) ignited upholstered furniture	2
Suspected arson and ignition of bedding	1
Propane ignition from part failure/leak/break	1
Smoker's material ignited unclassified material	2

Tractor Trailer

Industrial truck crash – ignited diesel	1

Automobiles (includes cars, trucks, vans, single body units)

Motor vehicle crash – ignited gasoline	1
Unknown	3

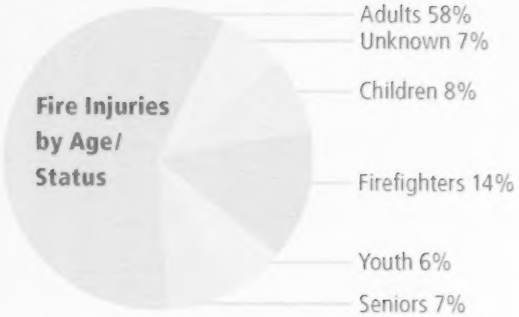
Gas Distribution System, Pipeline

Ignition of flammable gas by undetermined ignition source	1

Miscellaneous Equipment – Unclassified

Ignition scenario unknown – victim physically/mentally disabled	1
Total Deaths Involving Fire	**13**

Alberta Fire Casualties



Seniors: 65 years of age and older
Adults: 18 - 64 years
Youth: 12 - 17 years
Children: 11 years and under
Note: No firefighters died in 2004 fires. The male to female ratio of adult civilian fire deaths was 2.1:1.

Definitions of injuries are provided in the glossary.

Risk of Fire Deaths and Injuries

The risk of dying or being injured in a fire can be calculated as the fire death rate or fire injury rate – the number of casualties in an age group divided by the population of the age group. When fire deaths or injuries were calculated for the five-year period, 2000 - 2004, as rates per 100,000 population, per annum, using the above formula, it was found that:

- Seniors (65 years and older) had the highest risk of dying in fires (fire death rate of 1.8), followed by adults (20 - 64 years) (1.2), children (5 - 9 years) (0.5), youth (15 - 19 years) (0.3), and children (0 - 4 years) (0.3) and youth (10 - 14 years) (0.0).
- Adults (20 - 34 years) had the highest risk of being injured in fires (fire injury rate of 14.3) followed by adults (35 - 49 years) (11.8), adults (50 - 64 years) (8.4), youth (15 - 19 years) (6.9), seniors (65 years and older) (6.4), youth (10 - 14 years) (4.9), and children (9 and under) (2.8).

Population data source: Alberta Ministry of Health and Wellness – *Alberta Health Care Insurance Plan Statistical Supplement 2004/2005.*

FIRE Facts

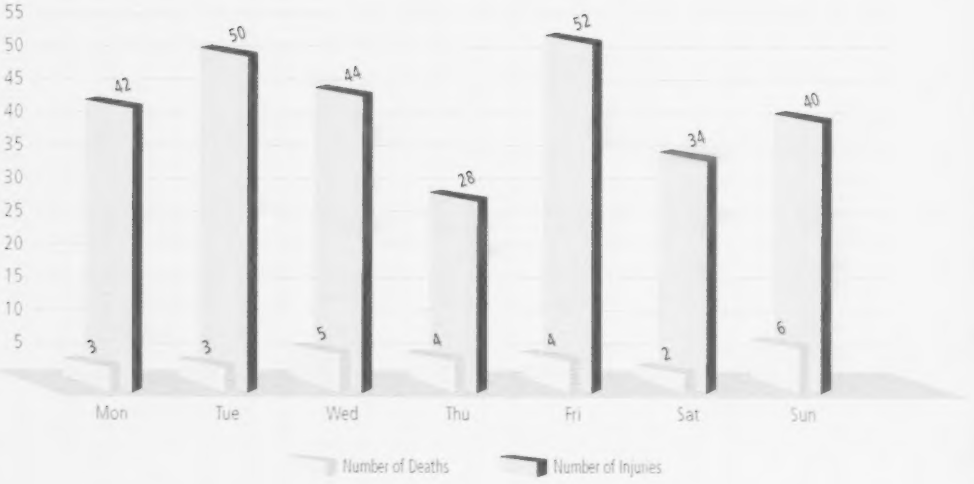
- On average, a fire related death occurred every 14 days in Alberta in 2004.
- 7% of all fatal casualties were impaired (alcohol/drugs/ medication) and 15% were asleep at the time of the fire. Both the condition and action were unknown in 50% of the fatal casualties.
- There were 0.8 fire injuries per day, on average, in Alberta in 2004.
- 58% of the injured casualties were awake and normal at the time of fire; 15% were asleep and 6% were impaired by alcohol/drugs/medication.
- 41% of fire injuries occurred when persons entered or remained inside a building for firefighting (32%), for rescue (3%) and to save property (6%).
- 16% of fire injuries occurred while persons were attempting to escape.
- The male to female ratio in adult civilian fire injuries was 2.2:1.

Fire Casualties by Month

FIRE Facts

- Most Fire Deaths in 2004 happened in November (22%), followed by September (19%), and most fire injuries occurred in January (20%), followed by February (10%). However, a five-year (2000 - 2004) analysis revealed that most Fire Deaths happened in February (15%) followed by April (11%). In a similar analysis, most fire injuries happened in January (10%) and in June (9%).
- In 2004, most Fire Deaths happened on Sundays (22%), and most fire injuries happened on Fridays (18%). A five-year analysis revealed Saturdays to have the most Fire Deaths and fire injuries.
- Forty-one percent each of all fire deaths occurred between 2:30 to 10:29 p.m. and 10:30 p.m. to 6:29 a.m. The majority of fire injuries (40%) occurred between 2:30 to 10:29 p.m. A five-year analysis showed most fire deaths (38%) happened between 10:30 p.m. and 6:29 a.m., while most fire injuries (37%) happened between 2:30 p.m. and 10:30 p.m.

Fire Casualties by Day of Week



Fire Casualties by Time of Day

Time Periods	Type			
	All Injuries		Fire Deaths	
	No.	%	No.	%
6:30 a.m. - 2:29 p.m.	99	34.1	4	14.8
2:30 p.m. - 10:29 p.m.	110	37.9	11	40.7
10:30 p.m. - 6:29 a.m.	80	27.6	11	40.7
Unknown	1	1.2	1	3.7
Total	290	100	27	100

Fire-Related Deaths by Major Property Classification

Property Classification		Fire Deaths		Deaths Involving Fire	
		No.	%	No.	%
Residential	One and Two Family Dwellings	7	50.0	2	15.4
	Mobile Home (1 or 2 family units)	2	14.3	2	15.4
	Apartments	1	7.1	2	15.4
	Motor Home (includes camperized van)	1	7.1	–	–
	Sub Total	**11**	78.6	**6**	**46.2**
Special Property – Transportation Equipment	Trucks (including light trucks/vans/ single body units)	–	–	3	23.1
	Trash/Rubbish/Recyclable	2	14.3	–	–
	Tractor Trailer	–	–	1	7.7
	Cars	–	–	1	7.7
	Sub Total	**2**	**14.3**	**5**	**38.5**
Miscellaneous Property	Gas Distribution System, Pipeline	–	–	1	7.7
	Miscellaneous Equipment-Unclass.	–	–	1	7.7
	Sub Total	**–**	**–**	**2**	**15.4**
Mercantile	Motor Vehicle Repair Garage/ Vehicle Paint Shop	1	7.1	–	–
	Sub Total	**1**	**7.1**	**–**	**–**
Total		14	100.0	13	100.0

FIRE Facts

- 79% of all Fire Deaths and 46% of all Deaths Involving Fire occurred in residential properties.

Fire Injuries by Major Property Classification

Property Classification	No.	%
Residential		
One and Two Family Dwellings	110	37.9
Apartments	69	23.8
Mobile Home (1 or 2 family units)	15	5.2
Other Residential	5	1.7
Special Property – Transportation Equipment		
Outdoor Property – Unclassified	6	2.1
Ground Transport Vehicle – Unclassified	5	1.7
Cars and Trucks (incl. light trucks/van/single body units, incl. mail truck, trailer truck, tow truck, tractor trailer) and other vehicles	11	3.8
Vacant Property, Property Without Contents	3	1.0
Industrial Truck, Forklift & Material Handling Truck, Farm Tractor and Equipment, etc.	3	1.0
Brush/Grass & Light Ground Cover on Open Land/Field and Trash/Rubbish/Recyclable	3	1.0
Building Under Major Renovation	1	0.3
Storage Properties	18	6.2
Miscellaneous Property	16	5.5
Industrial Manufacturing Properties	10	3.4
Mercantile	6	2.1
Assembly	5	1.7
Institutional	3	1.0
Business and Personal Service	1	0.3
Total	290	100

Major Causes of Fire Injuries

Cause	No.	%
Stovetop fire in pan/deep fryer with ignition of cooking oil	38	13
Cigarette/smoker's material igniting upholstered furniture/bedding, etc.	26	9
Candles igniting a variety of combustibles	25	9
Arson/vandalism	19	7
Electrical wiring, switches, panels igniting building components/flammable liquids/gases	18	6
Stovetop cooking (all other cooking, except frying)	13	4
Furnace/water heater, mostly igniting flammable liquids/gases	13	4
Child fireplay with matches, lighters, smoker's materials, etc.	10	3
Cutting/welding	10	3
Other cooking appliances – ovens, barbecues, etc.	7	2
Automobile battery, mostly igniting flammable liquids	7	2
Appliances: short circuits, part failure	6	2
Internal combustion engine, mostly igniting flammable liquids	4	1
Other	57	20
Unknown	43	15
Total	290	100

FIRE Facts

- Most fire injuries occurred in residential properties (69%), particularly in one & two family dwellings (38%), apartments (24%) and mobile homes (5%).
- The majority of fire injuries are inflicted in fires related to cooking (19%) followed by smoking (9%), candles (9%), arson/vandalism (7%) and electrical wiring, switches and panels (6%).

Fire Losses in Alberta 1995 - 2004

Year	Fires	Deaths	Injuries	$ Losses	Adjusted $ Losses
1995	6,528	36	425	111,140,466	105,848,062
1996	6,304	41	451	120,556,429	112,354,546
1997	6,670	37	448	141,964,034	129,647,519
1998	6,579	20	429	139,492,065	126,009,092
1999	6,380	51	386	146,519,201	129,205,644
2000	6,457	27	341	158,746,151	135,218,186
2001	7,020	43	393	230,340,922	191,790,942
2002	5,991	31	307	272,515,089	219,416,336
2003	5,646	24	322	348,285,786	268,531,832
2004	5,126	27	290	202,207,294	153,769,805
Total	62,703	337	3,792	1,872,039,790	1,572,018,324
Average	*6,270*	*34*	*379*	*187,203,979*	*157,201,832*

Adjusted losses were calculated from actual losses using the Annual Consumer Price Index (C.P.I.) figures for Alberta obtained from Statistics Canada (1992 CPI = 100).

FIRE Facts

- During the 10-year period 1995 - 2004, the annual number of fires reported to the Fire Commissioner's Office averaged 6,270. 2002 marks the first year in which the number of fires declined below 6,000. Whether this decline is real or due to sub-standard reporting is not clear.
- The numbers of all fire related deaths and fire injuries have fluctuated between 20 - 51 (average 34) and 290 - 451 (average 379), respectively.
- From a total of 5,126 fires during 2004, there were 2,923 structural fires (57%), 1,559 vehicle fires (30%) and 644 outdoor fires (13%).
- There were 14 destructive fires per day, on average, in Alberta during 2004. Direct property losses from fires was approximately $512,888 per day and $36,520 per fire.

Fire Rates and Per Capita Losses 1995 - 2004

Year	Population	Fires	Fire Rate*	$ Losses	$ Loss/Capita
1995	2,615,873	6,528	2.5	111,140,466	42.5
1996	2,679,435	6,304	2.4	120,556,429	45.0
1997	2,744,731	6,670	2.4	141,964,034	51.7
1998	2,781,290	6,579	2.4	139,492,065	50.2
1999	2,871,271	6,380	2.2	146,519,201	51.0
2000	2,932,963	6,457	2.2	158,746,151	54.1
2001	2,962,664	7,020	2.4	230,634,985	77.8
2002	3,050,889	5,986	2.0	272,515,089	89.3
2003	3,091,831	5,614	1.8	348,285,786	112.6
2004	3,124,923	5,126	1.6	202,207,294	64.7

* Fire Rate = Number of fires per 1,000 population

FIRE Facts

- The fire rate for the province has averaged 2.2 between 1995 and 2004.
- As a percentage of gross domestic product, fire losses have decreased by 45% between 2003 and 2004. As a percentage of personal income, fire losses have decreased by 45% over the same period.
- April (11%), followed by May and June (10% each) had the highest average number of fires per month. January (27%) had the highest average dollar losses per month, followed by October and May (both approximately 8%).
- The number of fires was highest on Fridays (16%) followed closely by Tuesdays (15%), while dollar losses were highest on Mondays (20%) and Fridays (19%).
- Where the time of fire was known, the number of fires was highest between 4 to 8 p.m. and 12 noon to 4 p.m. (20% each). Dollar losses were highest between 12 noon and 4 p.m.

Fire Losses Related to Economic Indices 1995 - 2004

Year	Fire Losses ($)	Gross Domestic Product ($ million)	% of GDP	Personal Income ($ million)	% of Personal Income
1995	111,140,466	92,120	0.12	64,528	0.17
1996	120,556,429	98,738	0.12	66,938	0.18
1997	141,964,034	107,048	0.13	72,952	0.19
1998	139,492,065	107,439	0.13	78,279	0.18
1999	146,519,201	117,080	0.13	81,151	0.18
2000	158,724,441	143,721	0.11	89,030	0.18
2001	230,634,985	151,173	0.15	97,907	0.24
2002	272,515,089	149,998	0.18	102,094	0.27
2003	348,285,786	170,631	0.20	106,180	0.33
2004	202,207,294	187,430	0.11	112,190	0.18

Fire Losses by Major Property Classes

Major Property Classes	Fires	%	$ Losses	% of $ Losses
Assembly	137	3	8,151,770	4.0
Institutional	28	1	207,635	0.1
Residential	1,680	33	88,723,938	43.9
Business and Personal Service	52	1	3,996,840	2.0
Mercantile	97	2	14,815,802	7.3
Industrial Manufacturing Properties	108	2	34,655,606	17.1
Storage Properties	327	6	11,149,175	5.5
Special Property – Transportation Equip.	2,253	44	27,763,395	13.7
Miscellaneous Property	444	9	12,743,133	6.3
Total	5,126	100	202,207,294	100.0

Fire Losses by Major Sources of Ignition

Major Sources of Ignition	Fires	%	$ Losses	% of $ Losses
Not Determined	1,352	26	68,823,512	34.0
No Igniting Object	22	0	641,352	0.3
Cooking Equipment	401	8	9,070,584	4.5
Heating Equipment	291	6	39,300,936	19.4
Appliances and Equipment	132	3	4,087,429	2.0
Electrical Distribution Equipment	616	12	25,099,953	12.4
Other Electrical Equipment	124	2	4,906,979	2.4
Smoker's Material and 'Open' Flames	1,157	23	31,480,724	15.6
Exposure	529	10	8,403,110	4.2
Miscellaneous	502	10	10,392, 715	5.1
Total	5,126	100	202,207,294	100.0

FIRE Facts

- The largest number of fires occurred in ground transport vehicles (29%), one & two family dwellings (21%), followed by apartments (7%), trash/rubbish/recyclables (6%), other outdoor properties (5%) and individual residential parking garages (4%).
- Property classes with the highest dollar losses were one & two family dwellings ($60 million or 30%), slaughter, preparation, preserving of meat/poultry ($29 million or 14%), and apartments ($20 million or 10%).
- The most frequent areas of fire origin were in vehicle (31%), outside (19%), function (18%) and structural areas (11%).
- Motor vehicle electrical distribution system, internal combustion engine, etc. (12%), exposure fires (9%), electrical wiring, lamps and equipment (6%), stove top burners (5%), smoker's materials (4%), and heating equipment (3%) were the most common sources of ignition in Alberta fires in 2004.
- The highest known property loss was attributed to fires where the source of ignition was central heating unit, furnace/boiler ($25 million or 12%). Sources of ignition were not determined in 26% of the fires in 2004, and these caused $69 million in property losses.
- Where known, the most common fuel or energy associated with the source of ignition were:
  - electricity (24%)
  - exposure fires (10%)
  - smoker's material (7%)
  - natural or other fuel gas (5%)
  - gasoline (4%).

FIRE Facts

- Arson and set fires accounted for 24% of all fires in Alberta in 2004. This means that approximately one out of four fires was deliberately set.
- The other common acts or omissions were electrical short circuits (9%), mechanical/electrical failure/malfunction (8%), part failure/leak or break (7%), misuse of smoker's materials (5%), ignorance of hazard (5%), and overheated cooking oil, grease, wax (3%).
- Acts or omissions were not determined in 16% of the fires and these fires accounted for $57 million in property losses. Construction/design/installation deficiencies accounted for the largest known dollar losses ($23 million or 12%).
- Materials most commonly ignited first were building components (10%), garbage/trash/rubbish (7%), electrical insulation in electrical equipment and gasoline (6% each), cooking oil/fat (4%).
- Materials first ignited were not determined in 25% of the fires and these fires accounted for $63 million in property losses. Ignition of combustible liquids (flash point 37.8°C and over) accounted for the largest known dollar losses ($23 million or 12%).

Fire Losses by Major Acts or Omissions

Major Acts or Omissions	Fires	%	$ Losses	% of $ Losses
Not Determined	822	16	57,004,519	28.2
Act or Omission N/A	42	1	904,750	0.4
Arson or Set Fires	1,212	24	26,047,283	12.9
Misuse of Source of Ignition	593	12	16,582,114	8.2
Misuse of Material Ignited	325	6	10,377,332	5.1
Mechanical, Electrical Failure, Malfunction	1,322	26	45,387,542	22.4
Construction, Design, Installation Deficiency	93	2	25,833,368	12.8
Misuse of Equipment	64	1	2,315,174	1.1
Human Failing	539	11	15,846,527	7.8
Vehicle Accident	50	1	1,269,469	0.6
Miscellaneous	64	1	639,216	0.3
Total	5,126	100	202,207,294	100.0

Fire Losses by Major Materials First Ignited

Major Materials First Ignited	Fires	%	$ Losses	% of $ Losses
Not Determined	1,290	25	62,477,009	30.9
Building Components	621	12	36,736,382	18.2
Furniture, Furnishings	247	5	10,015,831	5.0
Clothing, Textiles	163	3	5,255,528	2.6
Wood, Paper Products	485	9	12,465,757	6.2
Flammable and Combustible Liquids	781	15	44,483,443	22.0
Flammable Gases	89	2	5,814,410	2.9
Chemicals	239	5	3,456,781	1.7
Agricultural Products	317	6	5,015,184	2.5
Miscellaneous	894	17	16,486, 969	8.2
Total	5,126	100	202,207,294	100.0

Initial Detection of Fires

Property Classification	Fires	%
Automatic Sprinkler System	19	0
Automatic System Other Than Sprinkler	2	0
Heat Alarm: Single Station	4	0
Heat Detector: Linked To Alarm System	12	0
Initial Detection – Unclassified	24	0
Initial Detection – Unknown	52	1
No Intial Detection/Burnt Out	48	1
Smoke Alarm: Single Station	169	3
Smoke Detector: Linked To Alarm System	69	1
Visual Sighting/Personal Detection	4,727	92
Total	5,126	100

Fires by Method of Fire Control and Extinguishment

Method of Fire Control and Extinguishment	Fires	%
Miscellaneous – Unknown	300	5.8
Hand Fire Extinguisher	546	10.7
Standpipe System	128	2.5
Makeshift Fire Fighting Aid	493	9.6
Fire Department – Water	3121	60.9
Fire Department – Other Than Water	147	2.9
Sprinkler System	23	0.4
Fixed System Other Than Sprinklers	13	0.3
Burned Out	297	5.8
Miscellaneous – Unclassified	58	1.1
Total	5,126	100.0

FIRE Facts

- Visual sighting or other means of personal detection (92%) was the primary means of initial detection of fires in 2004, while smoke alarms/ detector devices accounted for 4%.
- Where the method of fire control and extinguishment is known, fire departments extinguished 61% of all reported fires. The other common methods of fire extinguishment were hand fire extinguishers (11%) and "makeshift" fire fighting aids (10%).

Alberta Home Fire Losses

Home Fires by Type of Home

Type of Home	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
One/Two Family Dwellings	1,054	69	9	56	110	57	59,669,142	70
Apartments, Tenements, Flats	351	23	3	19	69	36	20,358,975	24
Mobile Homes	125	8	4	25	15	8	5,618,720	7
Total	1,530	100	16	100	194	100	85,646,837	100

Risk of Fire Loss by Type of Home 2000 - 2004

Type of Dwelling	No. of Units*	Fires/1,000 Homes	Fire Deaths/ 100,000 Homes	Fire Injuries/ 100,000 Homes
One/Two Family Dwellings	868,543	1.3	1.4	13.2
Apartments, Tenements, Flats	207,447	1.9	2.2	31.0
Mobile Homes	62,690	2.0	4.1	23.0

* Statistics Canada – Catalogue no. 62-202 provided an estimate of the number of households in Alberta (2002).

FIRE Facts

- Thirty percent of all fires in Alberta occurred in homes. Home fires accounted for 59% of all fire deaths (16 out of 27), 67% of all fire injuries (194 out of 290) and 42% of all property losses ($85M out of $202M) from fires.
- The relative frequency of fire in apartments and mobile homes, compared to that in a one & two family dwelling, is 1.5 times each.
- Compared to one & two family dwellings, the risk of dying or being injured in a mobile home fire is three times and nearly two times higher, respectively.

Home Fires by Major Areas of Fire Origin

Area of Origin	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Kitchen/Cooking Area	348	23	3	19	54	28	8,525,291	10
Lounge/Living Room	168	11	5	31	34	18	10,304,101	12
Sleeping (under 5 occupants)	160	10	3	19	43	22	6,583,504	8
Exterior Wall	118	8	0	0	2	1	3,375,801	4
Heating Equipment Room/Chimney/Flue Pipe/Gas Vent	77	5	0	0	4	2	4,491,899	5
Court/Patio/Terrace	75	5	0	0	2	1	2,986,622	3
Laundry Area	63	4	0	0	7	4	2,227,572	3
Exterior Balcony/Porch	61	4	0	0	6	3	4,906,854	6
All Other Areas	393	26	4	25	40	20	33,494,110	39
Area of Origin – Unknown	67	4	1	6	2	1	8,751,083	10
Total	1,530	100	16	100	194	100	85,646,837	100

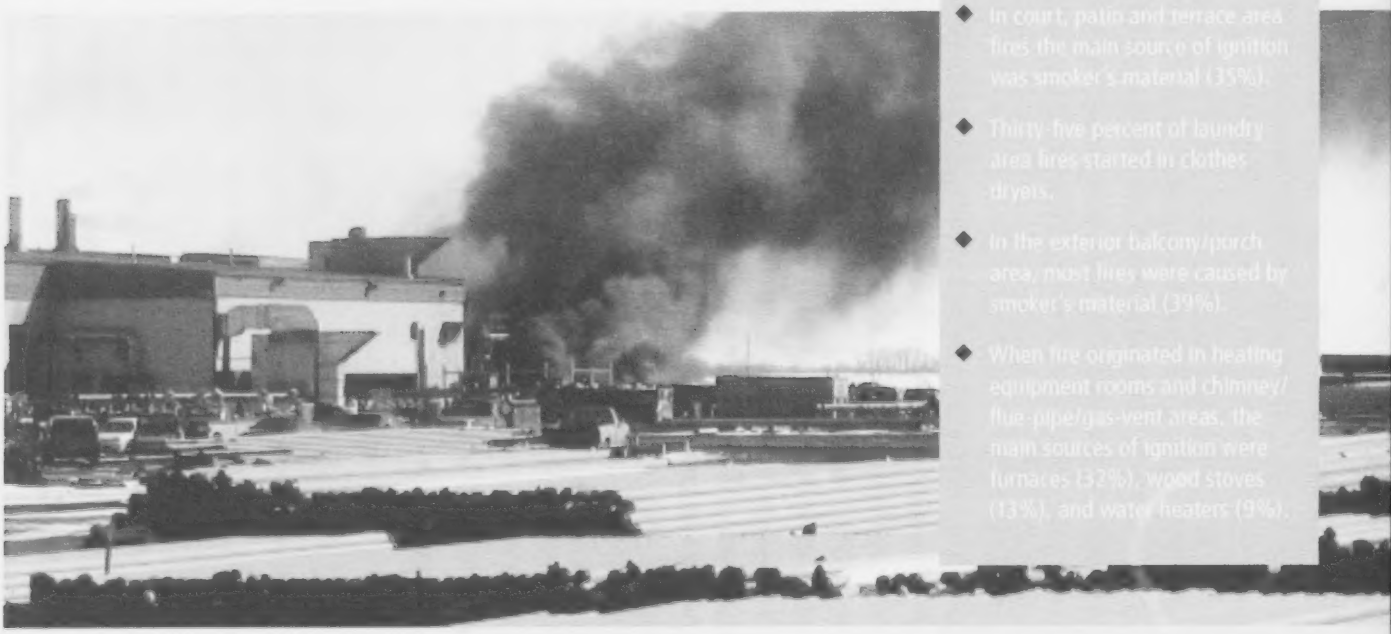
Major Known Causes of Home Fires

Fire Causes	Fires	% of Fires	Deaths	Injuries	$ Losses
Arson/Set Fire	218	14	3	15	10,339,632
Other Cooking*	217	14	2	29	5,474,420
Smoking	182	12	4	24	8,945,706
Electrical Distribution Equipment and Light/Fluorescent Bulb	159	11	1	6	10,881,139
Heating Equipment Related**	157	10	0	11	9,606,620
Overheated Cooking Oil Fire	106	7	0	22	1,464,920
Candle (accident)	74	5	0	21	2,874,435
Child Fireplay	45	3	0	19	2,210,484
Exposure Fire***	44	3	0	0	1,999,117
Appliance/Equipment Related	33	2	0	4	2,440,470
Clothes Dryer	27	2	0	3	753,899
Flammable/Combustible Liquid/Gas Ignition	22	2	1	9	1,173, 626
Other Causes/Unknown	238	16	5	31	27,482,369
Total	1,530	100	16	194	$85,646,837

* Cooking related fires except those involving overheated cooking oil.

** Heating equipment includes furnaces, water heaters, fireplaces, wood stoves, space heaters and associated chimneys/vents.

*** An exposure fire is a fire that spreads from one property to an adjacent property.



FIRE Facts

- Most home fires (23%) and most home fire injuries (28%) were in the kitchen/cooking area.
- The highest percentage of deaths (31%) occurred where fires started in the lounge/living room.
- Fires started in sleeping areas accounted for 10% of fires, 19% of deaths and 22% of injuries.
- Most kitchen fires started on stove/top burners (77%), causing 91% of injuries in kitchen fires.
- Major sources of ignition in living rooms were smoker's material (21%), electrical wiring/equipment/lamps/bulbs (13%), and candles (10%).
- Major sources of ignition in bedrooms were candles (19%) and smoker's material (14%), followed by matches/lighters (13%), electric lamps (6%).
- Exposure fires were the major sources of ignition (82%) where fires started on the exterior wall.
- In court, patio and terrace area fires the main source of ignition was smoker's material (35%).
- Thirty-five percent of laundry area fires started in clothes dryers.
- In the exterior balcony/porch area, most fires were caused by smoker's material (39%).
- When fire originated in heating equipment rooms and chimney/flue-pipe/gas-vent areas, the main sources of ignition were furnaces (32%), wood stoves (13%), and water heaters (9%).

Home Fires by Smoke Alarm Operation

Smoke Alarm Installation

Status	Fires	% of Fires	Deaths*	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Not Installed	610	40	4	25	63	32	31,303,320	37
Installed	920	60	12	75	131	68	54,343,517	63
Total	1,530	100	16	100	194	100	85,646,837	100

* Please refer to the research article titled *"Making sense of smoke alarm data and home fire deaths,"* in the August 2004 issue of *Alberta Fire News* (pages 16 - 19) for a detailed statistical analysis of home fire deaths in relation to smoke alarms. *Alberta Fire News* is available at www.municipalaffairs.gov.ab.ca/fco_index.htm

Activation of Smoke Alarms

Status	Fires	% of Fires	Deaths	% of	Injuries	% of Injuries	$ Losses	% of $ Losses
Activated	367	40	3	25	62	47	25,044,075	46
Not Activated	221	24	3	25	26	20	6,113,880	11
Activation – unknown	332	36	6	50	43	33	23,185,562	43
Total	920	100	12	100	131	100	54,343,517	100

Alarm Assistance to Occupants

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Not applicable/no occupants	39	11	0	0	3	5	2,668,013	11
Alarm assisted occupants to evacuate	264	72	1	33	41	66	21,005,089	84
Alarm did not assist occupants to evacuate	48	13	0	0	15	24	639,579	3
Occupant evacuation unknown	16	4	2	67	3	5	731,394	3
Total	367	100	3	100	62	100	25,044,075	100

Reasons – Alarms Did Not Assist

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Alarm inaudible	1	2	0	0	0	0	200	0
Physical/mental challenge	3	6	0	0	3	20	95,732	15
Unnecessary to evacuate	35	73	0	0	4	27	304,520	48
Under the influence of drugs/alcohol	9	19	0	0	8	53	239,127	37
Total	48	100	0	0	15	100	639,579	100

Reasons – Alarms Not Activated

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Unsuitable location	6	3	0	0	0	0	203,379	3
Dead battery	21	10	0	0	2	8	800,162	13
No battery	52	24	2	67	13	50	1,352,514	22
AC not connected/ disabled	17	8	1	33	4	15	611,572	10
Mechanical failure	16	7	0	0	1	4	395,877	6
Not enough smoke*	109	49	0	0	6	23	2,750,376	45
Total	221	100	3	100	26	100	6,113,880	100

* Since most of these fires originated in outside areas or structural areas of homes, an adequate amount of smoke did not reach inside the homes to trigger the smoke alarms.

FIRE Facts

- In 2004, 40% of homes where fire occurred did not have smoke alarms installed. Lack of power source was the major reason for no alarm activation (42%).

For a more detailed description of the following variables, please refer to the *Alberta Fire Statistics Reporting Manual*.

Act or omission

The human element by which someone has done something (an act) or failed to do something (an omission). The act or omission indicates whether the fire was deliberate, neglectful or accidental.

Incendiary or Set Fires:
includes arson, suspected incendiarism, riot, mischief or vandalism.

Misuse of Source of Ignition:
includes disposal of smoker's material, thawing, inadequate control of an open fire, children playing with source of ignition, welding or cutting too close to combustible material or torch too close to combustible material.

Misuse of Material Ignited:
includes fuel spilled accidentally, improper fuelling technique, cleaning or washing parts, improper container, overheated cooking oil, combustible placed too close to heat, and improper storage.

Mechanical and Electrical Failure or Malfunction:
includes part failure, automatic or manual control failure, electrical short circuit and part worn out.

Construction, Design or Installation Deficiency:
includes construction or design deficiency, installation too close to a combustible, other installation deficiency or over-fusing.

Misuse of Equipment:
overfuelling, includes any misuse of equipment or tools.

Human Failing:
includes person asleep, temporary loss of judgement, physical disability, panic, influence of alcohol or drugs and ignorance of hazard.

Area of origin

The area of a building or vehicle where the fire started.

Means of Egress:
the area allowing an individual transit or a way of going out. Includes hallway, stairway, escalator, lobby and elevator.

Assembly, Sales Area:
areas where groups of people gather. Includes theatre, arena, lounge, living room, sales or show room, library, museum and sports facility.

Function Area:
the area where a mode of action or activity is undertaken. Includes sleeping area, dining area, bar, washroom, office, laboratory, printing and photographic reproduction area, kitchen, laundry room, operating room, performance area and manufacturing area.

Storage Area:
the area inside a building where items are stored. Includes product storage area, closet, equipment area, records storage area, shipping and receiving area, trash and rubbish area, vehicle garage and agricultural product storage area.

Service Facilities:
conveyance items such as dumbwaiters, service shafts, laundry and garbage chutes, heating and cooking ducts and chimneys or gas vents.

Structural Area:
includes crawl space, balcony, ceiling and floor assembly, wall assembly, exterior wall or exterior roof and awning or canopy.

Vehicle Area:
includes engine area, fuel area, control area, passenger area and cargo area.

Outside Area:
includes open area such as lawn, field or park, court, patio, parking area, outdoor storage area and trash or rubbish area.

Death

A person killed accidentally as a direct result of a fire or a person who dies from a fire injury within one year following the date on which the injury was sustained.

Fire Death:
refers to a person who died as a direct result of a fire, either by smoke inhalation or burns.

Death Involving Fire:
refers to a person who was in a place where fire occurred, but who may have died from a cause other than the fire itself (e.g. a person who dies in an automobile accident where the vehicle subsequently catches fire prior to death, a suicide by burning or asphyxia, an incendiary fire set for the specific reason of killing).

Fuel or energy

The fuel associated with the source of ignition. Includes coal, wood, fuel oil, gasoline, natural gas or other fuel gases, smoker's material, electricity, lightning or exposures.

Injuries

A person accidentally injured as a direct result of a fire (a member of the fire department accidentally injured while in the process of fighting a fire or injured as a result of an accident while en route to or returning from the scene of an actual fire is considered a fire action injury).

Minor Injury:
an injury that does not require hospitalization of more than a 24-hour period or absence from work of not more than one full day.

Light Injury:
an injury that required admission to a hospital for between 24 hours to 48 hours and/or absence from work for a period of two to fifteen days.

Serious Injury:
an injury that required admission to a hospital for a period of more than 48 hours and/or an absence from work for a period exceeding fifteen days.

Material first ignited

The actual material that ignites and creates the fire condition.

Structural Components, Finish Materials:
includes roof covering, wall covering, floor covering, structural component, ceiling covering and insulation.

Furniture, Furnishings:
includes furniture, ironing board, mattress, bedding, drapery and broom, mop or brush.

Clothing, Textiles:
includes clothing, fabric, fur and tarpaulin.

Wood, Paper Products:
includes wood, wood shavings, paper, cardboard and paper stock.

Flammable Liquids:
includes gasoline, fuel oil, combustible liquids, flammable liquids, paint, varnish, cooking oil, tar, asphalt, polish and wax.

Flammable Gases:
includes natural gas, propane, anaesthetic gas, acetylene and hydrogen.

Chemicals:
includes cellulose nitrate, plastic, oxidizing material, magnesium and alloys, titanium, natural or synthetic rubber and ammonium nitrate.

Agricultural, Forestry Products:
includes fibres, grains, starch, flour, hay, trees, felled timber, grass, fertilizer and manure.

Miscellaneous:
includes coal, creosote, sulphur, garbage, trash, oily rags and artificial trees.

Property classification

The principal use or occupancy of the building.

Assembly:
property for the gathering of persons for civic, political, travel, religious, social, educational or recreational purposes. Includes theatres, amusement or recreation places, schools, colleges, universities, churches, social or sport clubs, libraries and museums, eating establishments and passenger terminals.

Institutional:
property for medical treatment, or care of persons suffering from illness, disease or infirmity, for the care of infants, convalescents or aged persons and for penal or corrective purposes. Includes prisons, jails, reformatories, homes for the aged, community care facilities, children's hospitals, hospitals and clinics.

Residential:
property in which sleeping accommodation is provided for normal residential purposes. Includes one and two family dwellings, apartments, rooming or boarding houses, hotels, motels, dormitories and mobile homes.

Business and Personal Service:
property for conducting business. Includes offices, personal services such as hairdressing and data processing or storage facilities.

Mercantile:
property used for the display and sale of merchandise. Includes food and beverage sales, textile and clothing sales, furniture and appliance sales, books and specialty sales, recreational and hobby supply sales, repair shops, laundries, vehicle and boat sales and department or variety stores.

Industrial Manufacturing Properties:
property where raw materials are transformed into new products and where the component parts of manufactured products are assembled. Includes chemical, petroleum, paint and plastic manufacturing; wood, furniture, and paper manufacturing; metal product and electrical equipment manufacturing; food processing; beverage, tobacco, soap and margarine manufacturing; textile manufacturing; footwear and wearing apparel manufacturing; and vehicle and related equipment manufacturing.

Storage Properties:
property used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals. Includes agricultural product storage; textile, fibre and clothing storage; processed food and beverage storage; flammable liquids, gas and petroleum products storage; wood, furniture, and paper products storage; chemical, paint and plastic storage; metal products, machinery, and electrical appliance storage and vehicle storage.

Special Property and Transportation Equipment:
mainly outdoor property and transport equipment. Includes outdoor property, piers, buildings under construction or demolition, watercraft, rail transport vehicles, ground transport vehicles, aircraft and other special equipment.

Miscellaneous:
includes laboratories, farm facilities, outbuildings, utilities, glass and pottery manufacturing, mining, communications and nucleonics.

Source of ignition

The actual equipment, device or object which brings about ignition.

Cooking Equipment:
includes stove, range, food warming appliance, deep fat fryer, broiler and portable cooking unit.

Heating Equipment:
includes central heating unit, service water heater, space heater, fireplace, chimney, flue pipe and steam or hot water pipe.

Appliances and Equipment:
includes dryer, air conditioning equipment, pressing iron and incinerator.

Smoker's Material and 'Open' Flames:
includes cigarettes, pipes, cigars and/or matches, lighters when used in conjunction with smoking. Includes matches and lighters not associated with smoker's material, candles, cutting torches, welding equipment and hot ashes.

Exposure:
includes exposure from an attached or detached structure, lumber yard, open fire, forest, grass and brush.

Miscellaneous:
includes internal combustion engine, heat treatment equipment, industrial oven, tar pot, fireworks, conveyors, commercial and industrial machinery and chemical reactions.

Digital images and photos submitted to enhance this report by fire and emergency response departments are gratefully acknowledged.

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